What is claimed is:

1. 1. A metric generator comprising:
2. a bit-distance calculator receiving a complex signal
3.   along with a constellation that is divided into a
4.   one group and a zero group for each bit location,
5.   in which the complex signal is modulated using
6.   the constellation, for calculating a first
7.   distance of the zero group and a second distance
8.   of the one group for each received bit,
9.   comprising:
10.   means for shifting the complex signal by a
11.   predetermined value depending on the
12.   constellation and extracting an integer part
13.   of the shifted complex signal;
14.   means for finding a first position and a second
15.   position respectively located in the zero
16.   and the one groups for each bit from a
17.   lookup table for the constellation, wherein
18.   the first position is nearest to the integer
19.   part of the shifted complex signal within
20.   the zero group of the constellation and the
21.   second position is nearest to the integer
22.   part of the shifted complex signal within
23.   the one group of the constellation;
24.   means for inversely shifting the first and the
25.   second positions by the predetermined value
26.   respectively; and
27.   means for respectively calculating the first
28.   distance of the zero group between the

29   complex signal and the inversely shifted

30   first position as well as the second

31   distance of the one group between the

32   complex signal and the inversely shifted

33   second position;

34   means for multiplying the first distance of the zero

35   group by a weighting factor associated with the

36   complex signal to yield a bit metric of zero for

37   each received bit; and

38   means for multiplying the second distance of the one

39   group by the weighting factor associated with the

40   complex signal to yield a bit metric of one for

41   each received bit.

1   2. The metric generator of claim 1 wherein the bit-

2   distance calculator is fed with a real part of the complex

3   signal when an even-numbered bit is to be processed.

1   3. The metric generator of claim 1 wherein the bit-

2   distance calculator is fed with an imaginary part of the

3   complex signal when an odd-numbered bit is to be processed.

1   4. The metric generator of claim 1 wherein the complex

2   signal is compliant with a standard of Digital Video

3   Broadcasting - Terrestrial (DVB-T).

1   5. The metric generator of claim 4 wherein the

2   constellation is representative of QPSK, 16-QAM, 64-QAM,

3   non-uniform 16-QAM or non-uniform 64-QAM mapping.

1   6. The metric generator of claim 5 wherein the

2 predetermined value is a parameter α dictated by the DVB-T

3 standard for the constellation.

1   7. The metric generator of claim 5 wherein the

2 constellation is divided into the one and the zero groups

3 depending on a bit value of 1 or 0 at each bit location.

1   8. The metric generator of claim 1 wherein the

2 weighting factor is a channel-state information value.

1   9. An OFDM receiver comprising:

2   a de-interleaver for de-interleaving a series of

3   symbol-based data inverse to interleaving

4   operations at a transmitter end, in which the

5   symbol-based data is modulated with a

6   constellation;

7   a dynamic quantizer coupled to the de-interleaver, for

8   compressing the de-interleaved symbol-based data

9   to yield a complex signal in accordance with a

10   scheme of the constellation; and

11   a metric generator coupled to the dynamic quantizer to

12   receive the complex signal, for partitioning the

13   constellation into a one group and a zero group

14   for each bit location, generating a bit metric of

15   zero with respect to the zero group of the

16   constellation for each received bit, and

17   generating a bit metric of one with respect to

18   the one group of the constellation for each

19   received bit.

1   10. The OFDM receiver of claim 9 wherein the de-
2   interleaver provides a real part of the de-interleaved
3   symbol-based data when an even-numbered bit is to be
4   processed.

1   11. The OFDM receiver of claim 9 wherein the de-
2   interleaver provides an imaginary part of the de-interleaved
3   symbol-based data when an odd-numbered bit is to be
4   processed.

1   12. The OFDM receiver of claim 10 wherein the metric
2   generator computes the bit metric of zero and the bit metric
3   of one for the even-numbered bit from a real part of the
4   complex signal and a channel-state information value
5   associated with the complex signal.

1   13. The OFDM receiver of claim 11 wherein the metric
2   generator computes the bit metric of zero and the bit metric
3   of one for the odd-numbered bit from an imaginary part of
4   the complex signal and a channel-state information value
5   associated with the complex signal.

1   14. The OFDM receiver of claim 9 wherein the series of
2   symbol-based data is compliant with a standard of Digital
3   Video Broadcasting - Terrestrial (DVB-T) and the de-
4   interleaver is an inner de-interleaver comprising symbol and
5   bit de-interleavers compliant with the DVB-T standard.

1   15. The OFDM receiver of claim 9 wherein the
2   constellation is divided into the one and the zero groups
3   depending on a bit value of 1 or 0 at each bit location.

1   16. An OFDM receiver comprising:

2   a first dynamic quantizer for compressing a series of

3   channel-state information values;

4   a bit de-interleaver for de-interleaving a series of

5   symbol-based data inverse to interleaving

6   operations at a transmitter end and providing the

7   compressed channel-state information value

8   associated with the de-interleaved symbol-based

9   data, in which the symbol-based data is modulated

10   with a constellation;

11   a second dynamic quantizer coupled to the bit de-

12   interleaver, for compressing the de-interleaved

13   symbol-based data to yield a complex signal in

14   accordance with a scheme of the constellation;

15   and

16   a metric generator respectively coupled to the second

17   dynamic quantizer and the bit de-interleaver to

18   receive the complex signal and the compressed

19   channel-state information value associated with

20   the complex signal, for partitioning the

21   constellation into a one group and a zero group

22   for each bit location, and generating bit metrics

23   of zero and one with respect to the zero and the

24   one groups of the constellation for each received

25   bit, separately;

26   wherein the bit metric of zero and the bit metric of

27   one for an even-numbered bit are computed from a

28   real part of the complex signal and the

29   compressed   channel-state   information   value

30   associated with the complex signal;

31   wherein the bit metric of zero and the bit metric of

32   one for an odd-numbered bit are computed from an

33   imaginary part of the complex signal and the

34   compressed   channel-state   information   value

35   associated with the complex signal.

1   17. The OFDM receiver of claim 16 wherein the bit de-

2 interleaver provides a real part of the de-interleaved

3 symbol-based data when the even-numbered bit is to be

4 processed.

1   18. The OFDM receiver of claim 16 wherein the bit de-

2 interleaver provides an imaginary part of the de-interleaved

3 symbol-based data when the odd-numbered bit is to be

4 processed.

1   19. The OFDM receiver of claim 16 wherein the series of

2 symbol-based data is compliant with a standard of Digital

3 Video Broadcasting - Terrestrial (DVB-T) and the de-

4 interleaver is an inner de-interleaver comprising symbol and

5 bit de-interleavers compliant with the DVB-T standard.

1   20. The OFDM receiver of claim 16 wherein the

2 constellation is divided into the one and the zero groups

3 depending on a bit value of 1 or 0 at each bit location.